Tropentag, September 18-21, 2016, Vienna, Austria

"Solidarity in a competing world — fair use of resources"

Balanced Feeding Could Improve Productivity of Cross-Breed Dairy Cattle in Smallholder Systems (Tigray, Northern Ethiopia)

Alemayehu Tadesse[1], Moses Matovu[2], Yayneshet Tesfay[3], Mark Breusers[4], Veerle Fievez[5]

[1] *Mekelle University, Animal, Rangeland and Wildlife Sciences, Ethiopia*
[2] *Ghent University, Food Safety and Food Quality, Belgium*
[3] *International Livestock Research Institute (ILRI), Ethiopia*
[4] *KU Leuven, Faculty of Social Sciences, IARA, Belgium*
[5] *Ghent University, Animal Production (Lanupro), Belgium*

Abstract

This study was conducted to assess the feed baskets of lactating Holstein Friesian crossbred cows and to formulate suggestions for optimisation of the ration to balance crude protein and metabolisable energy (ME) supply for optimal milk production under smallholder dairy farming in Agula and Hagereselam districts of Tigray region, northern Ethiopia. A total of 60 smallholder dairy farmers (30 from each district) who owned 1–5 lactating cows were involved in the study during the months of July and August 2015. Feed intake and milk production were recorded. Weende and Van Soest analysis was done on representative feed samples from which ME content was assessed. The observed diets offered to lactating cows of both study sites were grouped into five categories based on the inclusion rate of wheat and barley straw (WBSM), noug seed cake (NSC) and atella (local brewery by-product). The average ration composition in the groups were: group 1 (60.4 % WBSM, 30.8 % wheat bran (WB) and 8.7 % atella), group 2 (49.8 % WBSM, 21.8 % WB, 17.5 % NSC and 10.8 % atella), group 3 (53.5 % WBSM, 24.5 % WB, 13.3 % NSC and 8.7 % atella), group 4 (40.7 % WBSM, 24 % WB, 13.1 % NSC and 22.2 % atella) and group 5 (49.8 % WBSM, 21.8 % WB, 17.5 % NSC and 10.8 % atella). The potential milk yield was calculated based on ME and crude protein (CP) intake from the rations of each group. Protein and ME supply only seemed balanced in group 5 (18 % of the farms). In the other groups imbalanced diets were fed, of which 26 % were protein deficient (group 1), whereas (surprisingly) 56 % of the farms included more than 10 % NSC in their diet, which resulted in an excessive protein supply. The milk yield of group 1 potentially could be increased by 114 % with an additional supplement of 1.6 kg of NSC. Overall, NSC could be an excellent protein corrector, when included at a proportion of about 10 % in the diet in combination with 43–58 % WBSM, 23–31%WB and 9–20 % atella.

Keywords: Crude protein, metabolisable energy, milk yield, Noug seed cake, small scale dairy farming

Contact Address: Alemayehu Tadesse, Mekelle University, Animal, Rangeland and Wildlife Sciences, Mekelle University Endayesus Campus, 231 Mekelle, Ethiopia, e-mail: alextmu@yahoo.com